

GP-302850

VARIABLE CURVATURE ROTARY DRAW DIE

ABSTRACT OF THE DISCLOSURE

A tube is bent having a curved portion with a variable radius extending between first and second ends. The curved portion includes a circular arc portion with a constant radius and a clothoid transition portion with a variable radius. The circular arc portion extends from the first end toward a point of integration. At the point-of integration, the circular arc portion merges with the transition portion. The transition portion extends from the point of integration to the second end. As the transition portion extends from the point of integration, its radius of curvature increases over its arc length, thereby, improving the quality of the bent tube by gradually bending the tube over a longer distance, thereby reducing local stresses on the bent portion of the tube.